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Pandemic Influenza and Jail Facilities and Populations

Persons processed into and through jail facilities in the United States may be particularly vulnerable during an influenza pandemic. Among other concerns, public health and corrections officials need to consider flow issues, the high turnover and transitions between jails and the community, and the decentralized organization of jails. In this article, we examine some of the unique challenges jail facilities may face during an influenza pandemic and discuss issues that should be addressed to reduce the spread of illness and lessen the impact of an influenza pandemic on the jail population and their surrounding communities. (Am J Public Health. 2009;99: S339-S344. doi:10.2105/ AJPH.2009.175174)

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AT YEAREND 2007, MORE

than 7.3 million adults were under correctional supervision in prison, in jail, on probation, or on parole, accounting for about 3.2% of the adult population in the United States. Prisons are confinement facilities run by state or federal correctional authorities and typically house sentenced felons. Jails are confinement facilities usually administered by local law enforcement agencies and typically house persons awaiting trial or sentencing or who have been convicted and sentenced to terms of less than one year. Probation is a nonconfinement sanction involving supervision in the community. Parole is supervision of offenders after release from prison. Of the adults

under correctional supervision, thirty percent—or about 2.3 million—were held in prisons or jail facilities throughout the country. About 800 000 of the 2.3 million were held in the more than 3000 jail facilities nationwide. Although jails held fewer inmates than prisons at yearend 2007, over the course of the year jails had more than an estimated 13 million bookings.²

Persons held in correctional facilities in the United States have higher rates of infectious and chronic diseases, mental illness, substance dependency, and homelessness prior to jail booking, than the general public.³ During an influenza pandemic, these health and socioeconomic issues would likely make jail inmates particularly

vulnerable because of their compromised immune systems and possible diminished capacity to understand the importance of taking medication. In addition, the large number of jail facilities and high turnover of jail inmate populations would likely present challenges for managing the spread of infection into jails from surrounding communities and, equally important, from jails into communities.

Such possibilities suggest the need for jail facilities and public health officials to work together during the pandemic influenza planning process. However, the decentralized nature of the jail system in the United States complicates the planning process. In this article, we address characteristics

of jails that public health officials need to be aware of when planning for an influenza pandemic. These characteristics include

- 1. the number and varying size of jail facilities in United States,
- 2. the high turnover of jail populations,
- the connection between jail facilities and their surrounding communities.
- the capacity of jails as it pertains to the ability to handle infected inmates, and
- the prevalence of and capacity to provide services for physical health, mental health, and substance abuse problems of inmates.

We used data and reports collected and compiled by the United States Bureau of Justice Statistics (BJS), a component of the United States Department of Justice that is dedicated to collecting, analyzing, publishing, and disseminating data on crime, criminal offenders, victims of crime, and the operations of justice systems at all levels of government. The BJS data provide the only nationally representative data on jails and jail inmates. Because of the number and variety of jail systems in the nation, this is an important issue, though often overlooked. We focused on those data relevant to pandemic planning, such as population characteristics, turnover, and comorbid medical conditions. In addition, we reviewed 2005-2009 pandemic influenza planning literature posted by the government (available at http:// www.pandemicflu.gov).

LOCAL JAIL CHARACTERISTICS

The latest data available indicate that throughout the United

States, more than 3200 jail facilities were distributed among 2860 jail jurisdictions.4,5 Jail jurisdictions are locally-usually countyoperated entities. The majority of jails are likely to be operated by a county Sheriff, though some are operated by county governments and a small number are operated by private corporations under contract from a county government. Some local governments have formed regional jails, facilities created to house inmates from several counties. Conversely, some large counties maintain more than one jail facility.

Although most counties have a jail, the jail inmate population is concentrated in large jurisdictions. At midyear 2008, there were about 786000 inmates held in jails nationwide.⁶ The roughly 1100 jails holding fewer than 50 inmates on an average day (38% of all jails nationwide) held only 3.0% of the jail inmate population. Conversely, the largest 170 jails, which averaged more than 1000 inmates per day, (and accounted for 6% of all jail jurisdictions nationwide) housed 52% of the nation's jail inmate population (Figure 1).

Regardless of size, most jails perform multiple roles in the community (see the box on page S342). Partly as a result of performing multiple roles, jails admit and release annually many more times the number of detainees than they hold on a given day. For example, during 2007 jails had an estimated 13 million bookings. These bookings did not represent unique individuals, however. The number booked during the 12 months ending June 30, 2007, was 17 times the size of the jail inmate population at midyear 2007.² Moreover, the high ratio of admissions to total jail populations indicates that the jail inmate

population turns over rapidly. During the last week of June 2007, jail turnover nationwide—measured in terms of the total number admitted and released divided by the average population—was 63.5%. This turnover varies with jail size. During the last week of June 2007, smaller jails—those housing fewer than 50 inmates on average—turned over at more than 100%, whereas the turnover rate in the largest jails—housing more than 1000 inmates—was about 54%.²

The high turnover rate also implies that the average time spent in jails is comparatively short. Nationwide, the average time served in jails amounts to approximately 21 days.⁶ By comparison, average time served in prisons is more than 2 years. In the largest jails, almost half of all inmates booked into them spend 2 or fewer days there. A BJS survey covering the largest 140 jails in 2004 found that approximately 46% of the inmates released from these jails during 2004 served fewer than 3 days, another 16% served 3 to 7 days, and 18% served between 1 week and 1 month. At the time of release, only 1% of those from the largest jails had served more than 1 year. Also in these large jails, the number of admissions fluctuates monthly, indicating that there may be some seasonality to the turnover rate. For example, within the largest jails, monthly admissions from January 2003 to January 2004 fluctuated from a low of 308 582 in February to a high of 357 259 in August.²

In terms of managing the movements of inmates booked into their facilities, jail administrators have relatively little control over the flow of inmates entering their facilities or the rate at which they leave. Judges decide whom to detain prior to trial and whom to

sentence to jail rather than prison. Detained inmates may make bail at any time and be released. Parole boards or probation officials determine which offenders to detain in jail while awaiting hearings to determine if there were violations of conditions of supervision. Offenders regularly move from community supervision into jail facilities and from jail facilities into community supervision. On any given day, half of the nation's jail population represents failure to comply with conditions under community supervision-not necessarily a new criminal act. For example, during 2004 approximately 219000 parolees (up from 133 900 in 1990) and 330 000 probationers (up from 222 000 in 1990) failed to comply with the conditions imposed on them while under community supervision and were returned to incarceration, either in prison or in jail.7

Despite the volatility in jail population movements over time, jail capacity has expanded at about the same rate, or even slightly faster, than the increase in the number of inmates confined in jails. Nationwide at midyear 2008, the number of inmates held in jails amounted to 95% of rated capacity. Since 2002, jails nationwide have operated at between 93% and 95% of capacity, up slightly from 90% in 2001. Smaller jails-for example the roughly 1100 housing fewer than 50 inmates on average and holding 3% of the jail population nationwide-operated at 67.3% of capacity. The 350 largest jailsthose housing more than 500 inmates on average and holding more than two thirds of jail inmates nationwide-operated at near 100% of capacity.5

Many of the inmates flowing through jails suffer from medical and mental health conditions. In

2002, more than one third (37%) of all jail inmates reported having a current medical problem. Some 14% of jail inmates reported multiple medical problems. The most frequently reported medical problems by jail inmates were chronic diseases. The most commonly reported medical problem was arthritis (13%), followed by hypertension (11%), asthma (10%), and heart problems (6%). Infectious diseases were reported less frequently; approximately 4.3% reported ever having had tuberculosis, 2.6% reported hepatitis, 1.3% reported HIV infection, and 0.9% reported an STD.^{8,9}

Wilper et al. provide standardized estimates of the prevalence of common chronic conditions in the incarcerated population (both prison and jail) as a whole for the purposes of comparing the prevalence of these conditions with those found in the general population. For our article, comparisons to the general population are not as relevant as the overall percentage of jail inmates with conditions.⁹

In addition, an increasing number of persons held in jails are non-US citizens, many of whom may come from high-risk countries. At midyear 2007, about 39 000 jail inmates were non-US citizens, accounting for about 5% of the jail population. Since 2000, the number of non-US citizens being held in jails has increased by 40%, whereas the number of US citizens being held in jails increased 9%.

Substance abuse and mental health problems are more prevalent among jail inmates than are medical problems. Approximately 2 in 10 jail inmates reported a recent history of mental health problems, including a clinical diagnosis or treatment in the year before arrest or since admission,

according to a BJS survey of jail inmates. 10 Further, a recent study by Steadman et al., in which clinical diagnostic instruments were used to determine past-month prevalence of serious mental illness among a sample of adult male and female jail inmates in 5 jails (2 in Maryland and 3 in New York), reported a prevalence of serious mental illness of 14.5% for males and of 31.0% for females.8 In addition, many inmates exhibit symptoms of mental health disorders based on criteria specified in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), as nearly two thirds (64%) of jail inmates reported either a recent history of a mental health problem or symptoms of a mental health disorder.

Among jail inmates in 2002, two thirds (68%) met the criteria for either dependence on or abuse of alcohol or other illegal substances. Over half (53%) of jail inmates were either dependent on or abusing drugs, and nearly one half (47%) were either dependent on or abusing alcohol. These factors combined affect issues of consent and ability to follow hygiene and prevention guidelines for inmates.

A review of personal interviews with jail inmates showed that in 2002, nearly half (47%) said that staff checked them to see if they were sick, and 81% said staff asked them questions about their health or medical history at admission. 8,11 More than 4 in 10 jail inmates had a medical examination since admission. Of every 10 inmates, 6 had been tested for tuberculosis, and more than 2 in 10 had been tested for HIV. About 4 in 10 jail inmates with a then-current medical problem had seen a doctor.

IMPLICATIONS

The number and varying size of jails, the high turnover in jails, the connection between jails and the community, the capacity of jails, and the prevalence of and capacity to provide services for physical health, mental health, and substance abuse problems all have implications for preparing for pandemic influenza.

Although standards do exist for infection control programs in jails, only around 350 jails nationwide, less than 10% of all jails, are accredited by either or both major accrediting bodies with health standards (though this does not include states with internal accrediting processes). Good infection control practices inside jails may have an immediate effect on surrounding communities, and jails may be similarly affected by good infection control practices in communities. Yet given the fluidity of

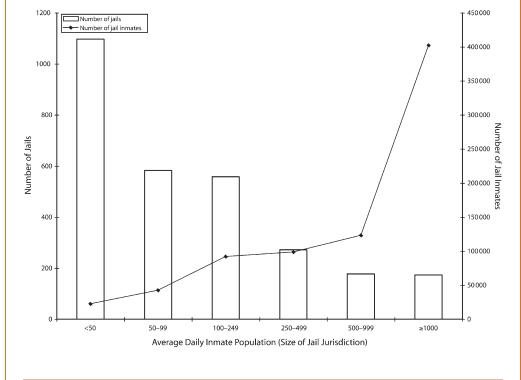


FIGURE 1-Number of jail inmates and jail jurisdictions, by size of jail jurisdiction: midyear 2007

Roles of Jails in Their Communities

Receive individuals pending arraignment and hold them awaiting trial, conviction, or sentencing. Readmit probation, parole, and bail bond violators and absconders.

Detain temporarily juveniles pending transfer to juvenile authorities.

Hold mentally ill persons pending their movement to appropriate mental health facilities.

Hold persons for the military, for protective custody, for contempt, and for the courts as witnesses.

Release convicted inmates to the community upon completion of sentence.

Transfer inmates to federal, state, or other authorities.

House inmates for federal, state or other authorities because of crowding in other facilities.

jail inmate populations, implementing infection control policies within jails may not be as easy as it sounds. In the largest jails, more than two thirds of the inmate population turns over within one week; in the smallest jails, the entire population turns over within one week. The short turnover times pose huge challenges in implementing infection control practices, particularly when jails are required to maintain security, transport detainees to court for hearings, and hold offenders for sentencing. The ongoing business of managing a jail poses challenges for administratorsadding procedures to control infection must take into account the roles and responsibilities of jails in the criminal justice system.

The pathway for transmission of pandemic influenza between jails and the community is a twoway street. Jails process millions of bookings per year. Infected individuals coming from the community may be housed with healthy inmates and will come into contact with correctional officers, which can spread infection throughout a facility. On release from jail, infected inmates can also spread infection into the community where they reside. Thus, a jail facility's pandemic influenza plan can directly affect not only the health of its inmate population but also the health of the surrounding

community. For planning purposes, it is important to keep in mind that persons serving probation sentences are typically not eligible for health care in the community, in contrast to those held in jail. Further, while the Advisory Committee on Immunization Practices recommends providing influenza vaccine to all persons who want to reduce the risk of becoming ill with influenza or transmitting it to others, experiences with recent vaccine shortages raise questions about the priority that would be given to jail inmates and jail employees as vaccine recipients in the event of a pandemic.

Because jail capacity has expanded at approximately the rate of growth of the jail inmate population and it is not clear that a pandemic influenza outbreak would necessarily result in an increase in the number of persons held in jails, it is not obvious that expansion of jail capacity would be necessary during a pandemic. More important than the number of beds, per se, is the use of the bed. Important to the utilization of jail capacity for public health purposes is understanding the way in which people become sick with influenza. Influenza is thought to spread primarily from person to person when infected persons cough, sneeze, or talk, sending respiratory droplets into contact with

susceptible persons. Research suggests that transmission might also occur when people touch contaminated objects and then touch their own nose, mouth or eyes with their hands.¹³

In the absence of a widely available pandemic influenza vaccine, corrections authorities could be constrained to recommend nonpharmaceutical interventions to reduce contact between people and to limit potential transmission. Planners would then need to consider developing infection control plans that specify needed reallocation of space and regrouping of inmates (possibly designated quarantine areas and treatment areas for those infected). If space and resources for delivery of medical treatment cannot be allocated, planners must think about security and staffing issues that could arise from the need for inmates to be transferred to hospitals. A primary function of jails is to transport inmates to court for appearances and back to jail, and jail administrators maintain security within facilities while operating these transport functions. However, in the event of an outbreak that resulted in a large increase in the number of inmates transferred to hospitals in addition to courts, jail managers will have to plan for the effects of additional transport to hospitals. Potentially, if expansion

of jail capacity is needed, it may be expansion of the number of correctional officers to handle increased demands for transporting inmates and to avoid leaving facilities understaffed. The infection control planners should fully explore infection control measures that jails, employees, and inmates can take to prevent spread of influenza-like illness while still allowing the correctional facility to protect the community from offenders and ensuring the rule of law.

The data on morbidity in jails indicate that jail inmate populations contain many individuals with a compromised immune system. This factor may facilitate the spread of infection. Although jails are able to provide limited medical care, their capacity for screening for medical and mental health problems appears to be greater than their capacity to provide care. Planning for a pandemic outbreak should consider the health screening role for jails. One approach would be to develop new instruments for screening and to use public health resources to assist in training and implementing screening procedures. But implementing strategies to prevent the possible spread of infection may be difficult to put into practice unless a jail facility is able to screen and group its inmates according to infection status. Planners should consider developing and then exercising a workable, realistic plan to screen inmates and staff for influenza¹⁴ using resources likely available during a pandemic.

Inmates with mental illness pose additional challenges for pandemic planning; even if inmates are screened and directed to resources in the community, health services will likely become overburdened

during a pandemic. Thus, any existing scarcity of mental health facilities in the community and any existing scarcity of access to necessary medications to control mental health illnesses may become more pronounced. This projected strain on health services poses a special challenge that planners need to address.

OTHER CONSIDERATIONS FOR PLANNING FOR **PANDEMIC INFLUENZA** IN JAILS

As corrections and public health officials align pandemic flu planning efforts with those of federal, state, local, public health, law enforcement, judiciary, and emergency management agencies, it is likely that their efforts would diminish the impact of a pandemic on correctional facilities and surrounding communities. The Department of Health and Human Services (HHS) provides a related and detailed pandemic planning checklist for correctional facilities at http://www.pandemicflu. gov/plan/workplaceplanning/ correctionchecklist.pdf. Apart from drafting a plan, planners need to discuss their own missions and describe how they anticipate other agencies will respond during a pandemic. The Public Health/ Law Enforcement Emergency Preparedness Workgroup (led by the Centers for Disease Control and Prevention and the Department of Justice) reported in July 2008 that law enforcement agencies and public health agencies should be aware of communication gaps that potentially exist between them. One example is that in the past, some agencies have mentioned other agencies in their plans and have made misguided assumptions about what actions those other agencies would

implement. Another potential communication gap to address relates to the definition of key words such as "surveillance," which can have vastly different meanings between agencies; thus in advance of a pandemic, the group should ideally talk through and define words that have multiple meanings.15

An unresolved issue for planning is deciding which entities have responsibility for containing the spread of an influenza outbreak. One view is that testing and response should occur in jails and that the operations should be managed by jail officials. Another view is that public health officials should be primarily responsible for managing health concerns, including containing the spread of infection during a pandemic outbreak, whether done in jail facilities or in other locations in the community. Planning for pandemic influenza must address these issues of responsibility and delivery of services.

The Advisory Committee on Immunization Practices recommends providing influenza vaccine to all persons who want to reduce the risk of becoming ill with influenza or of transmitting it to others. The committee further advises an emphasis on providing routine vaccinations annually to certain groups at higher risk for influenza infection or complications, including all persons 50 years or older and other adults who are at risk for medical complications from influenza or who are more likely to require medical care. 13 The data on morbidity in jails indicate that jail inmate populations contain many persons with current medical problems. For planning purposes, when a pandemic influenza vaccine becomes widely available, each jail may want to compare the

aforementioned Advisory Committee on Immunization Practices recommendations with their own inmate populations to see what percentage of the population would be most appropriate to vaccinate and in what order. In addition, given the high turnover in jail population and contact and interaction that correctional officers have with inmates, priority should be given to jail employees to minimize the spread of infection among them, which could in turn compromise prison security.

To ensure that jails can successfully carry out their missions during a pandemic, jail jurisdictions should plan for the likely absence of their employees due to the employee's illness or a family member's illness while at the same time working to protect employee health and to prevent spread of infection. Issues related to leave policies, health insurance, cross-training, and possible reduced work force are ideally addressed in advance of a pandemic. In addition to directing employees, planners should work to consider all the others who operate and who process through jails and who therefore during a pandemic could potentially be exposed to influenza.

We must begin to think of jails not as separate from the community but as collections of workers and detained persons who have a constant connection with the surrounding community. Thus, the boundary between jails and the community is relatively porous-what affects those behind the bars also affects those on the outside.

During a pandemic, jail medical services will likely be insufficient to treat large numbers of sick inmates; further, local hospitals may be overburdened and unable to admit inmates who are seriously ill with influenza.16 Preventing the

spread of pandemic influenza illness among inmates is therefore key to preserving the larger community's health.

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Contributors

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